

Dental Anatomy lec 14

Permanent Mandibular 1st Molar



Before we start..



Permanent Teeth

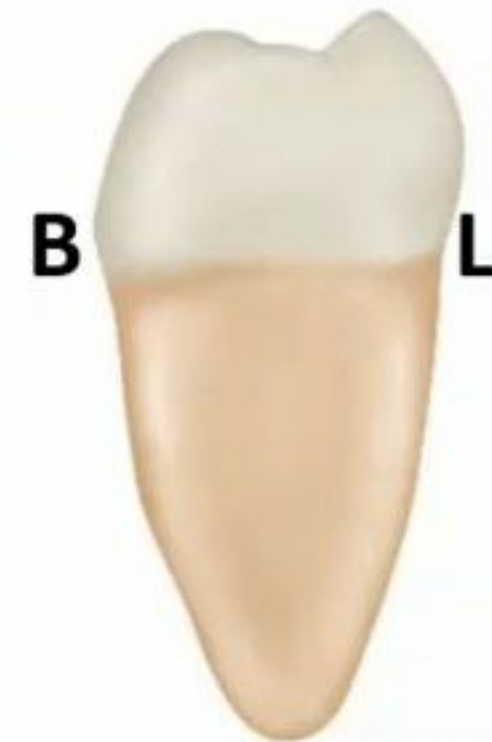
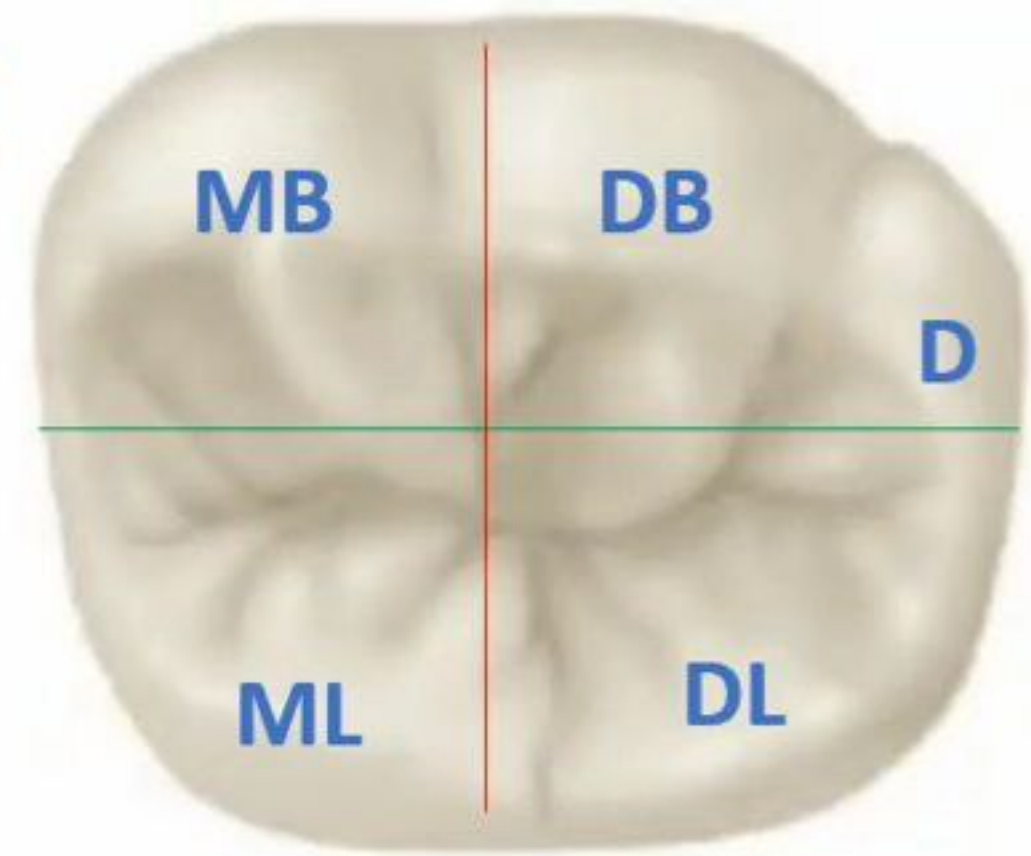
Upper Teeth		Erupt
Central incisor		7-8 yrs.
Lateral incisor		8-9 yrs.
Canine (cuspid)		11-12 yrs.
First premolar (first bicuspid)		10-11 yrs.
Second premolar (second bicuspid)		10-12 yrs.
First molar		6-7 yrs.
Second molar		12-13 yrs.
Third molar (wisdom tooth)		17-21 yrs.
Lower Teeth		Erupt
Third molar (wisdom tooth)		17-21 yrs.
Second molar		11-13 yrs.
First molar		6-7 yrs.
Second premolar (2nd bicuspid)		11-12 yrs.
First premolar (first bicuspid)		10-12 yrs.
Canine (cuspid)		9-10 yrs.
Lateral incisor		7-8 yrs.
Central incisor		6-7 yrs.



Mandibular First Molar

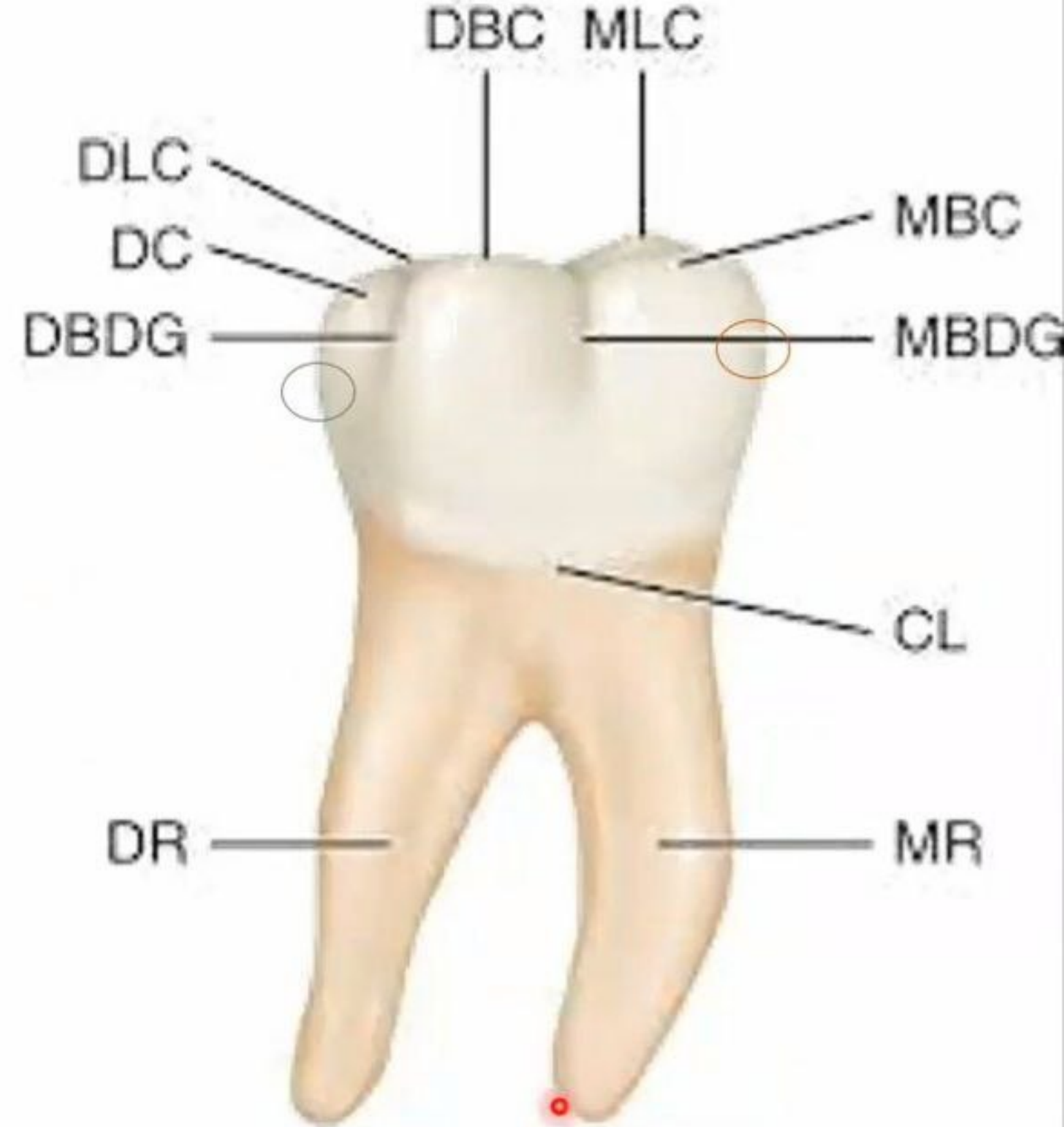
Principal Identifying Features

- 1) **Five cusps**: two buccal, two lingual and one distal.
- 2) The buccal surface is inclined lingually, with the presence of two buccal developmental grooves.
- 3) The crown is **wider mesio-distally** than bucco-lingually.
- 4) The occlusal surface is **rectangular** in shape.
- 5) There are two well developed roots: one mesial and one distal.



Buccal Aspect

- 1) The **mesial contact area** is at the junction between the occlusal and middle thirds.
- 2) The **distal contact area** is a little lower than the mesial contact area.
- 3) The cervical line is curving regularly apically.

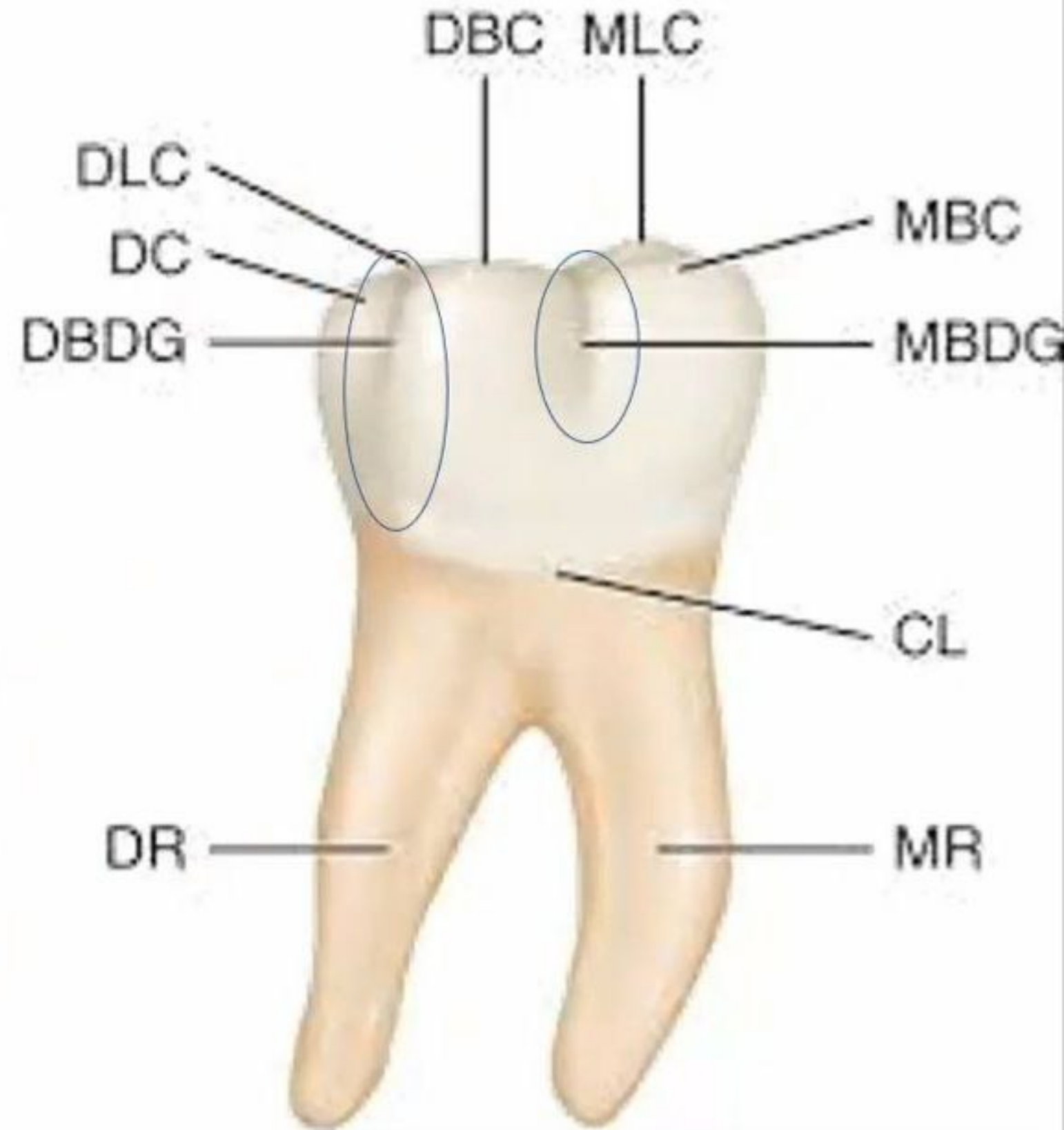


Buccal Aspect

4) There are 2 buccal developmental grooves acting as lines of division between the cusps:

- (a) The **mesio-buccal developmental groove**: separating between the mesiobuccal cusp and distobuccal cusp.
- (b) The **disto-buccal developmental groove**: separating between the distobuccal cusp and distal cusp. The mesiobuccal developmental groove is shorter than the distobuccal one.

5) The **mesio-buccal, distobuccal and distal cusps** are clearly visible, and the mesio-lingual and distolingual cusps tips can be seen.

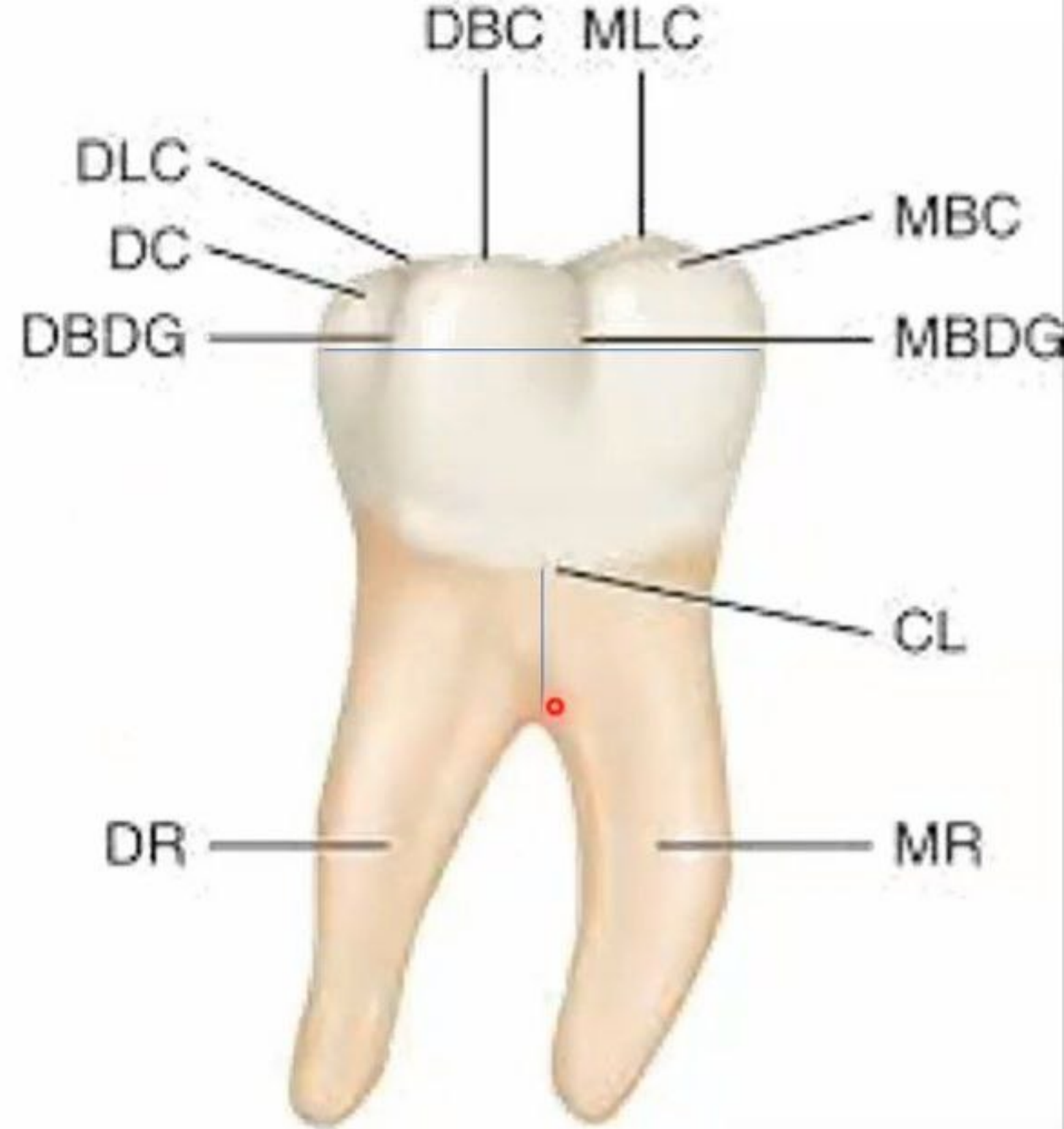


Buccal Aspect

6) The mesio-buccal cusp is slightly wider than the disto-buccal cusp, and they make together **80%** of the mesiodistal width of the crown, while the distal cusp makes the rest **20%**.

7) The buccal cusps are flat occlusally, while the distal cusp is rounded.

8) The bifurcation area is about **3mm** below the cervical line.



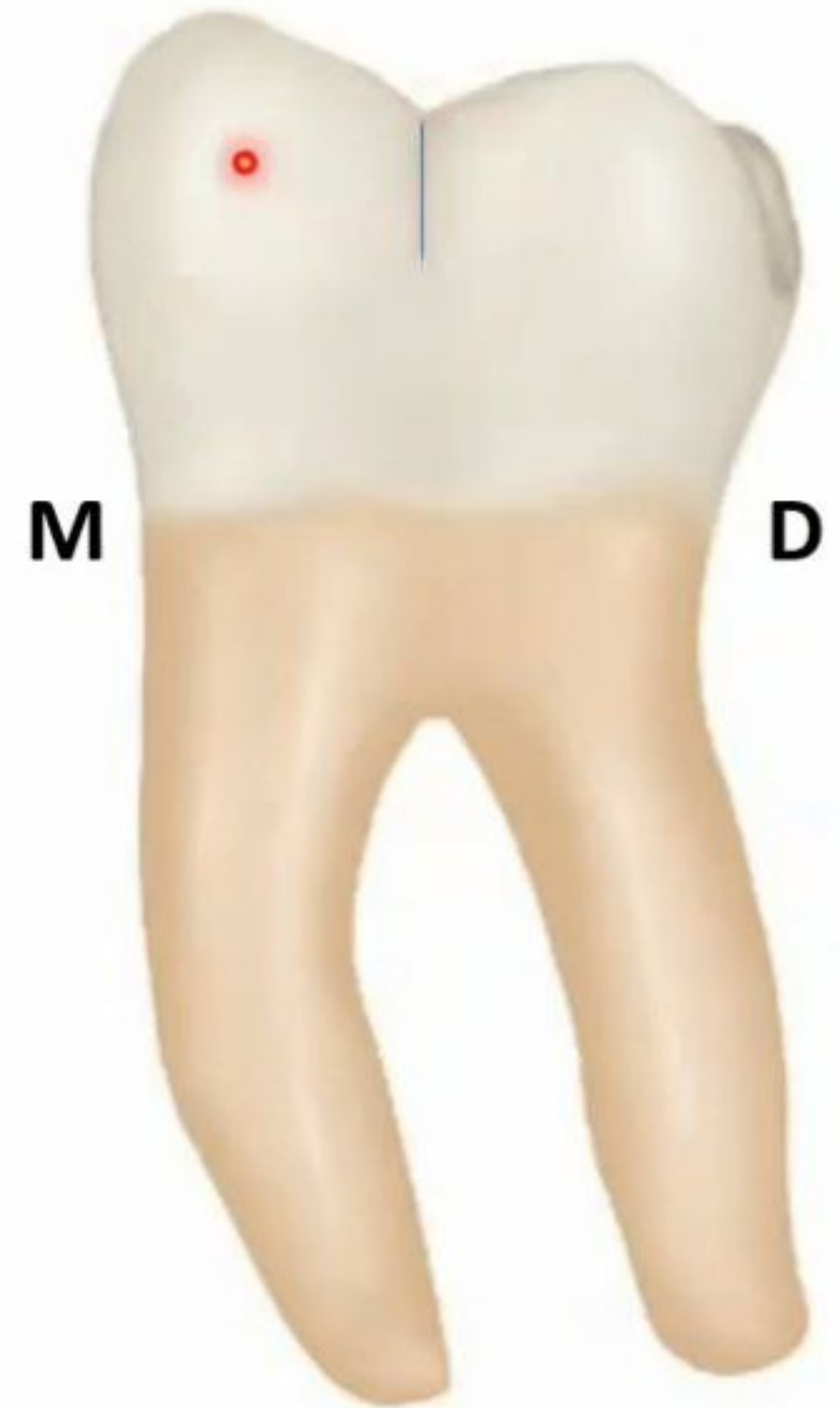
Lingual Aspect

1) From the lingual aspect, three cusps can be seen: the mesio-lingual cusp, the distolingual cusp and the lingual portion of the distal cusp.

The mesio-lingual cusp is the widest mesio-distally and has the highest cusp tip, while the distal cusp has the lowest cusp tip.

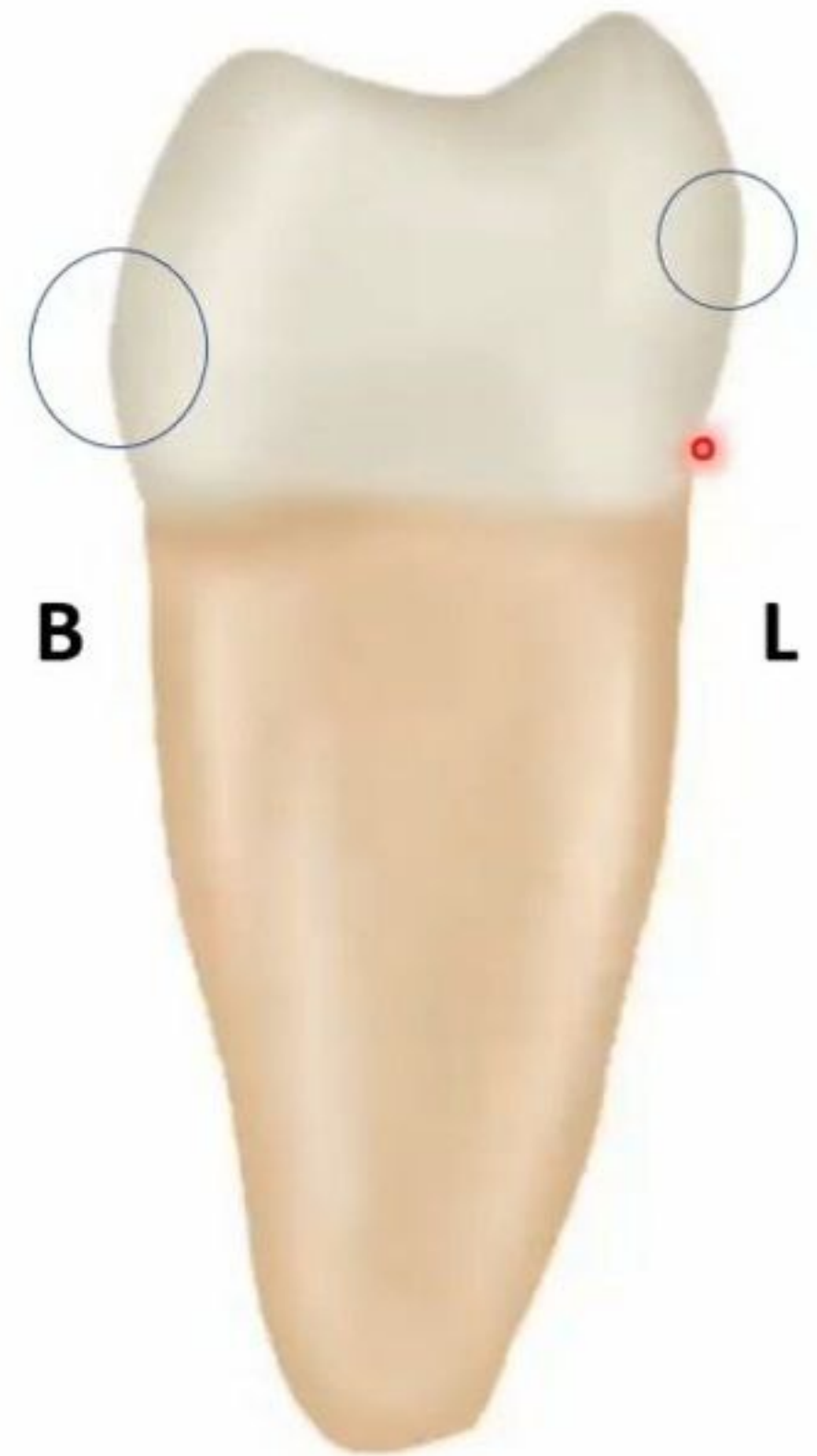
2) The two lingual cusps are **pointed** and form an obtuse angle at their cusps tips.

3) The lingual developmental groove extends downwards for about one third of the crown length, and it acts as a line of division between the two lingual cusps.



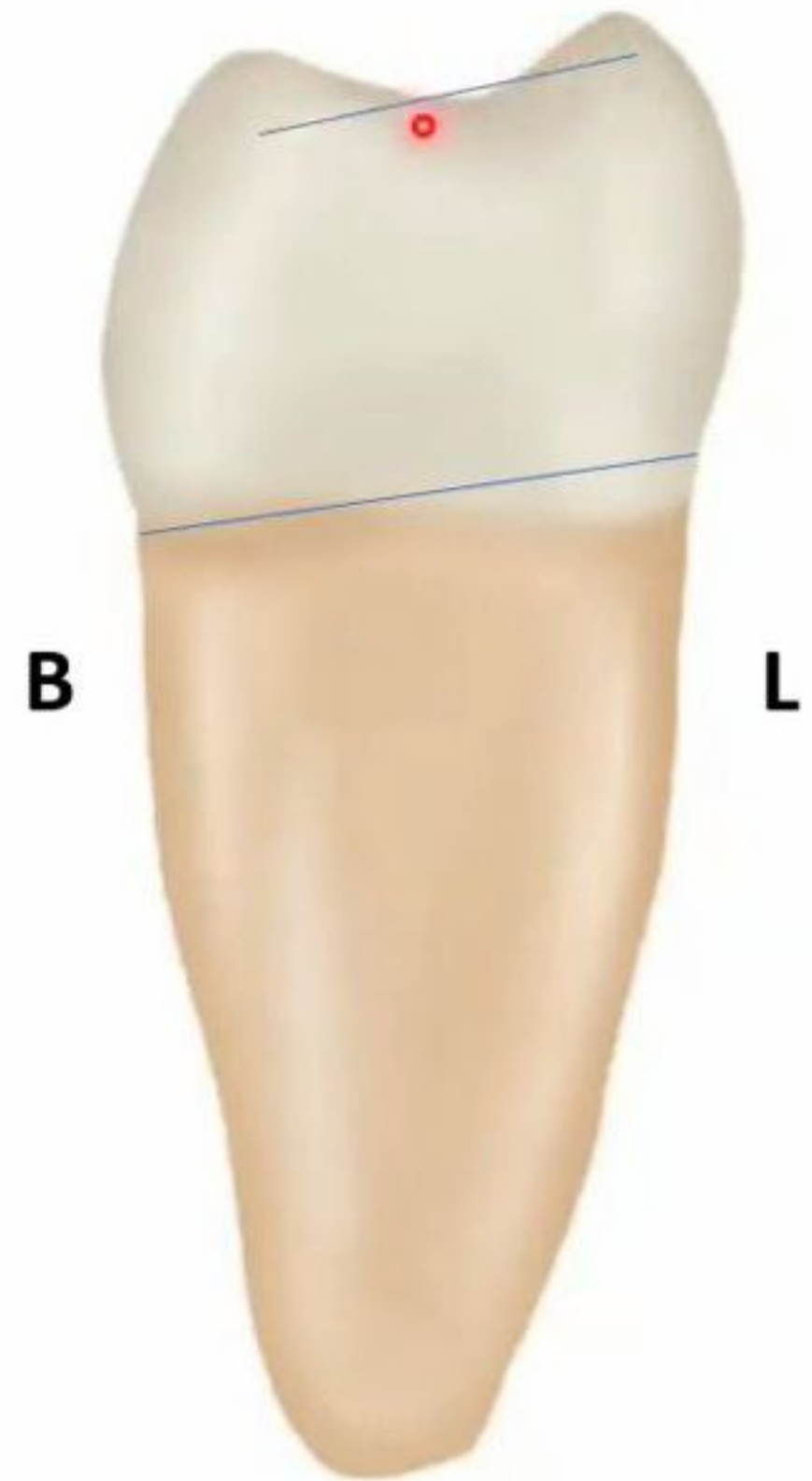
Mesial Aspect

- 1) The crown is **rhomboidal** with a **lingual tilt** of the buccal outline.
- 2) The buccal outline of the crown is convex from the cervical line up to the junction between the cervical and middle thirds forming the “**buccal cervical ridge**”, then the buccal outline straightens up to the buccal cusp tip.
- 3) The lingual outline is less convex, with the crest of curvature at the center of the middle third.



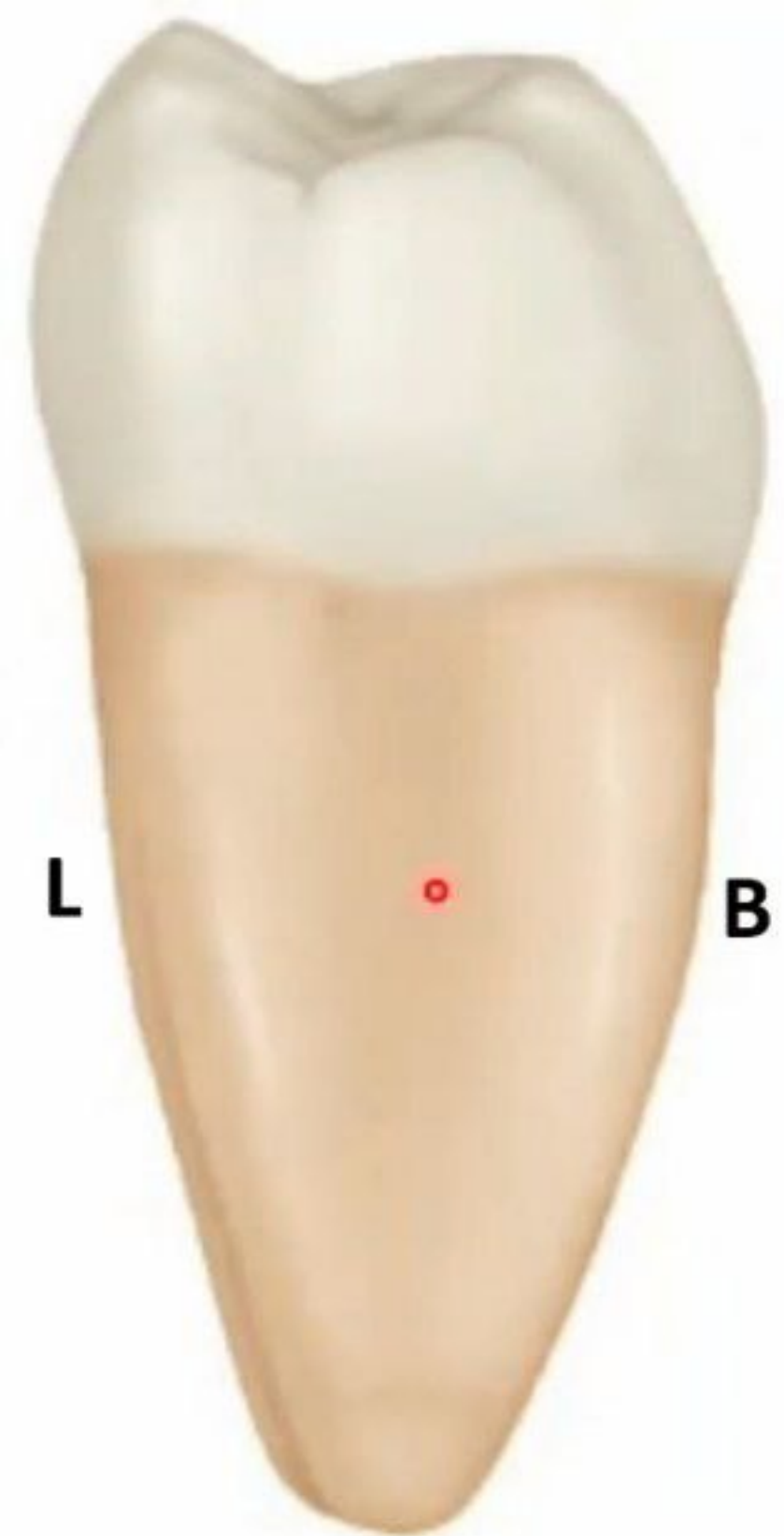
Mesial Aspect

- 4) The cervical line is irregular, and higher lingually than buccally.
- 5) The buccal cusp is flat and the lingual cusp is sharp with greater cusp height.
- 6) The mesial marginal ridge is located about 1 mm below the level of the cusps tips.



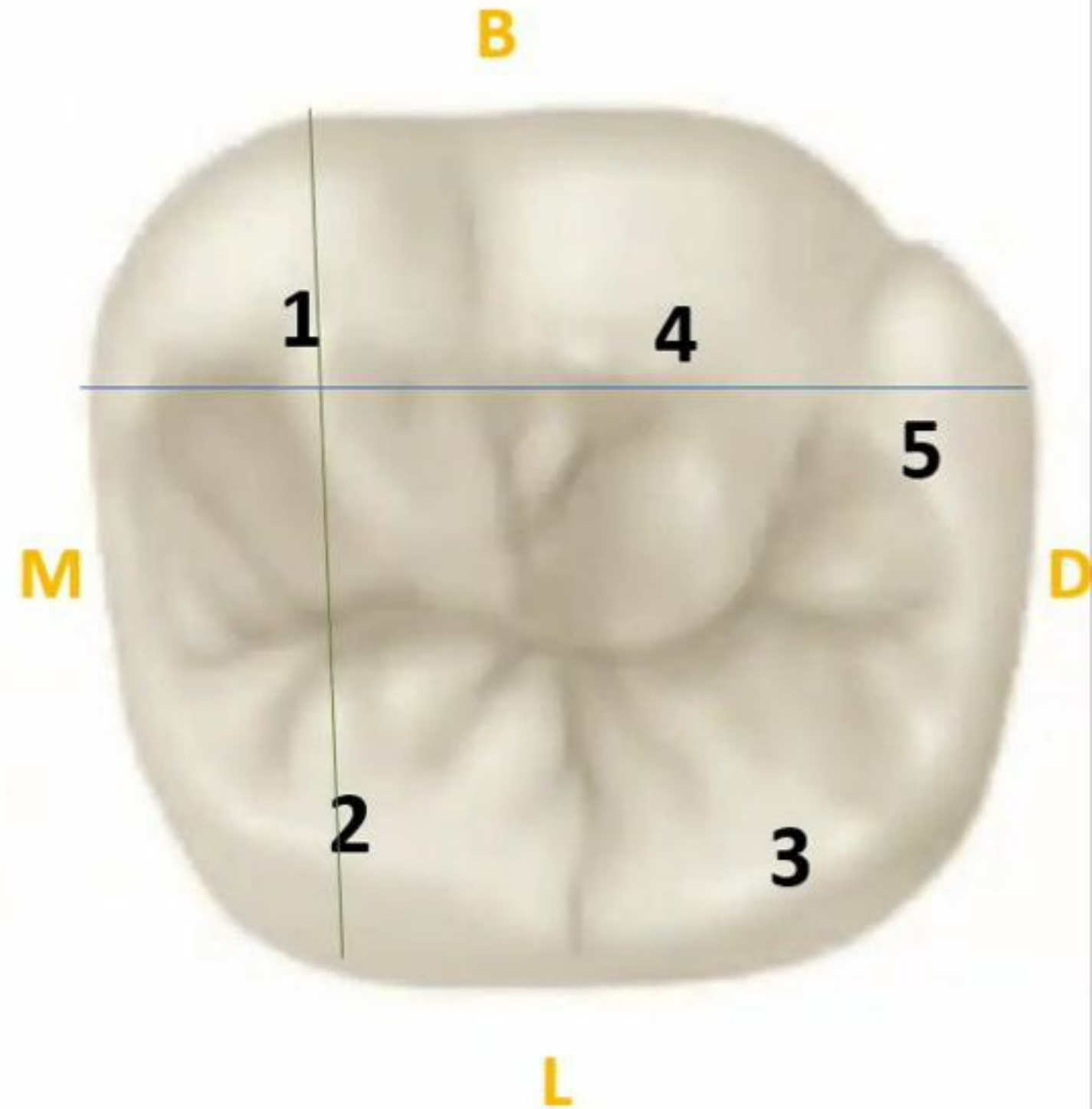
Distal Aspect (smaller)

- 1) The crown is **shorter** distally than mesially, so most of the occlusal surface can be seen from the distal aspect.
- 2) The **distal cusp** is located buccal to the center bucco-lingually.
- 3) The distal marginal ridge is short and curves cervically to form an obtuse angle.
- 4) The cervical line is irregular.
- 5) The distal root is narrower bucco-lingually than the mesial root.



Occlusal Aspect

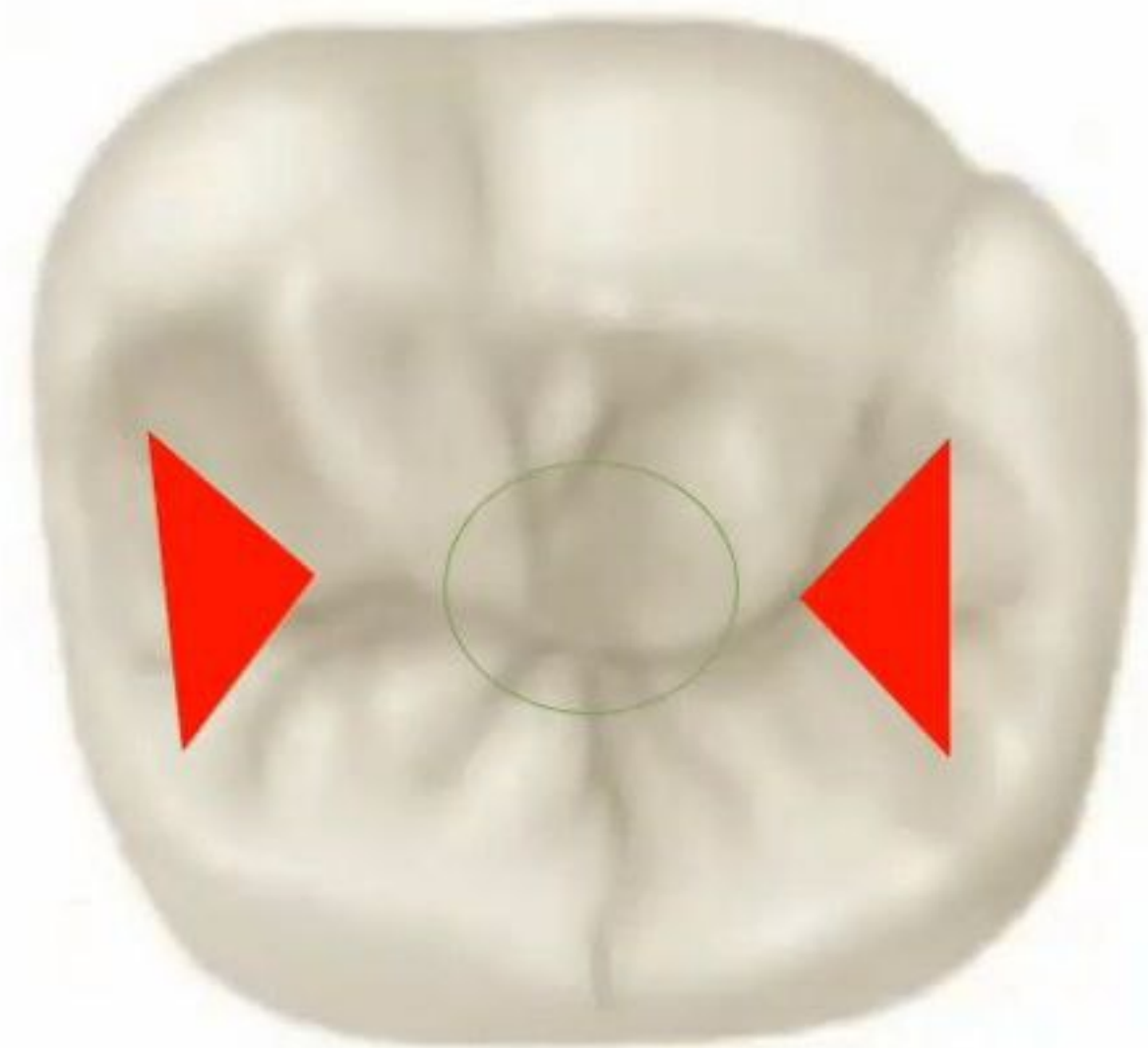
- 1) The occlusal outline is **rectangular in shape**, and it is larger mesio-distally than bucco-lingually by 1 mm.
- 2) The **bucco-lingual measurement** of the crown is greater on the mesial side than on the distal, and the **mesio-distal measurement** of the crown is greater on the buccal side than on the lingual.
- 3) There are five cusps: the **mesiobuccal cusp** (the largest), then the **mesiolingual** and the **distolingual cusps**, then the **distobuccal cusp**, and then the distal cusp (the smallest).
- 4) The distal contact area is located at the distal cusp.



5) There are three fossae; one major and two minor fossae:

(A) The major fossa is the **central fossa** which is roughly circular in shape, and is centrally placed on the occlusal surface. It is a concave area bounded by the distal slope of the mesio-buccal cusp, both mesial and distal slopes of the distobuccal cusp, the mesial slope of the distal cusp, the distal slope of the mesio-lingual cusp, and the mesial slope of the distolingual cusp.

(B) Minor fossae: (i) **Mesial triangular fossa**: located distal to the mesial marginal ridge.
(ii) **Distal triangular fossa**: located mesial to the distal marginal ridge.



6) There are four developmental grooves:

(A) Central developmental groove: passes from the central pit to the mesial and distal triangular fossae.

(B) Mesibuccal developmental groove: passes from the central pit to the buccal surface between the mesiobuccal and distobuccal cusps.

(C) Distobuccal developmental groove: passes from its junction with the central groove in a distobuccal direction separating the distobuccal and distal cusps.

(D) Lingual developmental groove: is an irregular groove passes lingually in between the cusps' ridges of the mesiolingual and distolingual cusps.

